

WHAT IS CLAIMED IS:

1. A process for producing composite metallic ultrafine particles with a core metal covered by a protective layer comprising:

- a. Providing a metal source having a metallic component selected from the group consisting of metallic salts, metallic oxides, and metallic hydroxides;
- b. Providing an organic compound comprising 4-22 carbon atoms, wherein the organic compound has a functional group consisting of an alcoholic hydroxyl group;
- c. Mixing the metal source and the organic compound to form a mixture of the metal source and the organic compound; and
- d. Heating the mixture of the metal source and the organic compound to a temperature at which the metallic components in the metal source combine to form the core metal, and the alcoholic hydroxyl group of the organic compound becomes bonded to a surface of the core metal, thereby forming the core metal having a protective layer of an organic compound.

2. The process according to claim 1 wherein the core metal includes at least one member selected from the group consisting of Ag, Au, Bi, co, Cu, Cr, Fe, Ge, In, Ir, Ni, Os, Pd, Pt, Rh, Ru, Si, Sn, Ti and V.

3. The process according to claim 1 wherein the metal salt is selected from the group consisting of carbonates, nitrate, chlorides, acetates, formates, citrates, oxalates, urates, phthalates, and fatty acid salts that have no more than four carbon atoms.

4. The process according to claim 1 wherein the organic compound having a functional alcoholic hydroxyl group is a straight-chain or branched-chain alcohol or an aromatic compound having a hydroxyl group.